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graph TD
    102[received signal fragment x(n), n incrementing every sample] --> 100
    subgraph 100 [ ]
        11[Perform coherent integration for determining correlation of x(n) with replica code at code phase indicated by index p and with replica carrier with coarse frequency offset indicated by m.] --> 12
        12["y_{p,m}(n_1), all p,m, with n_1 incrementing every N_c samples"] --> 13
        13["Multiply y_{p,m}(n_1) by neighbor complex conjugate y_{p,m}^*(n_1-1)."] --> 14
        14["z_{p,m}(n_1) = z_{p,m}^{(r)}(n_1) + jz_{p,m}^{(i)}(n_1), all p,m"] --> 15
        15["Noncoherently integrate, separately, over N_{nc} groups of N_c samples, real and imaginary parts of z_{p,m}(n_1), and construct c_{p,m} having as real part the noncoherent integration of the real part of z_{p,m}(n_1), and having as imaginary part the noncoherent integration of the imaginary part of z_{p,m}(n_1)."]
    end
    100 --> 104
    104["c_{p,m} = c_{p,m}^{(r)} + jc_{p,m}^{(i)}, all p,m"] --> 106
    subgraph 106 [ ]
        14["Find p,m for which |c_{p,m}| is maximum."] --> 15
        15["Best p,m and corresponding c_{p,m}^{(r)} and c_{p,m}^{(i)}"] --> 16
        16["Determine fine frequency offset Δf_f (to within ambiguity) based on ratio: c_{p,m}^{(i)}/c_{p,m}^{(r)} for best p,m."]
    end
    106 --> 108[Best p,m and ambiguous information about Δf_f]

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102
received signal fragment $x(n)$, n incrementing every sample

100

11
Perform coherent integration for determining correlation of $x(n)$ with replica code at code phase indicated by index p and with replica carrier with coarse frequency offset indicated by m .

12
 $y_{p,m}(n_1)$, all p,m , with n_1 incrementing every N_c samples

13
Multiply $y_{p,m}(n_1)$ by neighbor complex conjugate $y_{p,m}^*(n_1-1)$.

14
 $z_{p,m}(n_1) = z_{p,m}^{(r)}(n_1) + jz_{p,m}^{(i)}(n_1)$, all p,m

15
Noncoherently integrate, separately, over N_{nc} groups of N_c samples, real and imaginary parts of $z_{p,m}(n_1)$, and construct $c_{p,m}$ having as real part the noncoherent integration of the real part of $z_{p,m}(n_1)$, and having as imaginary part the noncoherent integration of the imaginary part of $z_{p,m}(n_1)$.

104
 $c_{p,m} = c_{p,m}^{(r)} + jc_{p,m}^{(i)}$, all p,m

106

14
Find p,m for which $|c_{p,m}|$ is maximum.

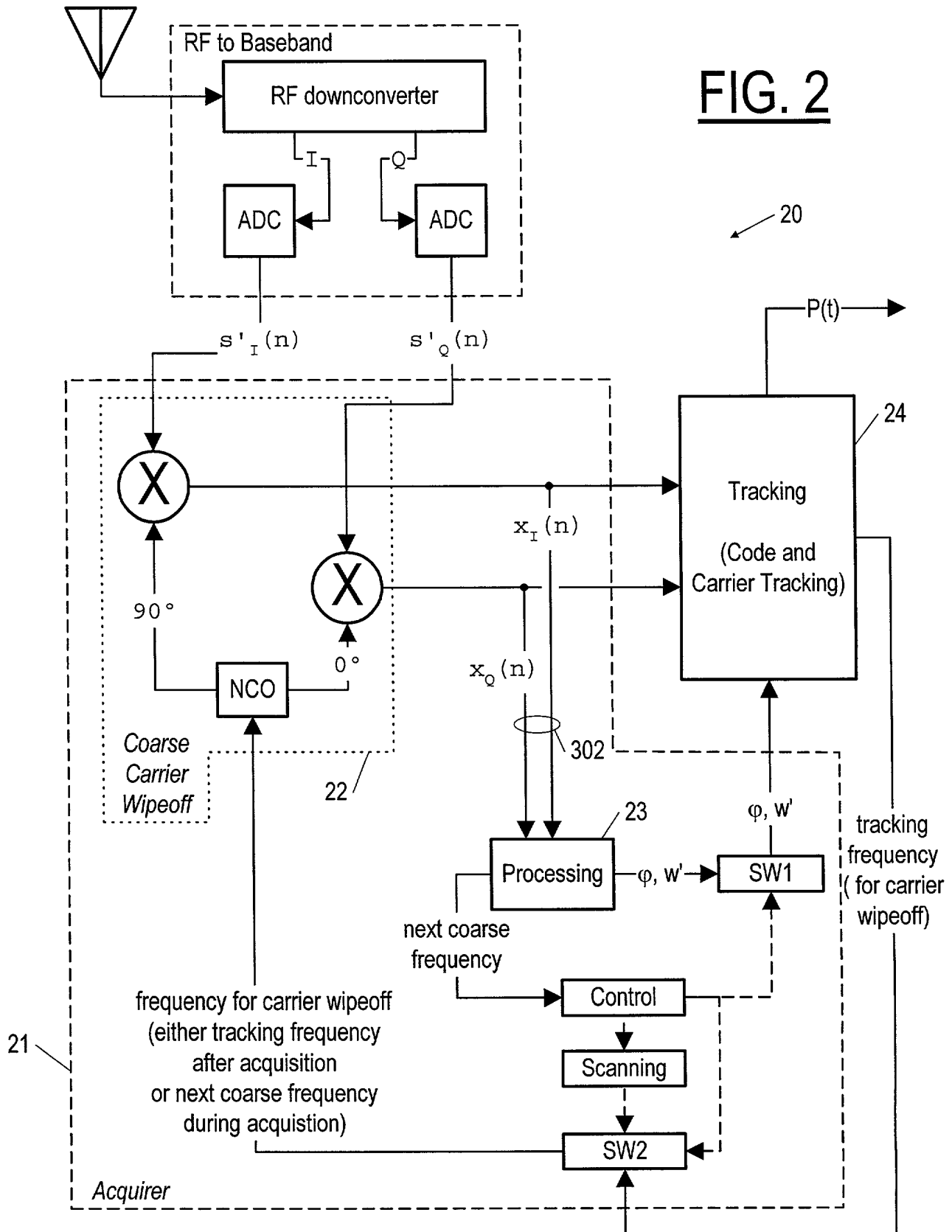
15
Best p,m and corresponding $c_{p,m}^{(r)}$ and $c_{p,m}^{(i)}$

16
Determine fine frequency offset Δf_f (to within ambiguity) based on ratio: $c_{p,m}^{(i)}/c_{p,m}^{(r)}$ for best p,m .

Best p,m and ambiguous information about Δf_f

Fig. 1

FIG. 2



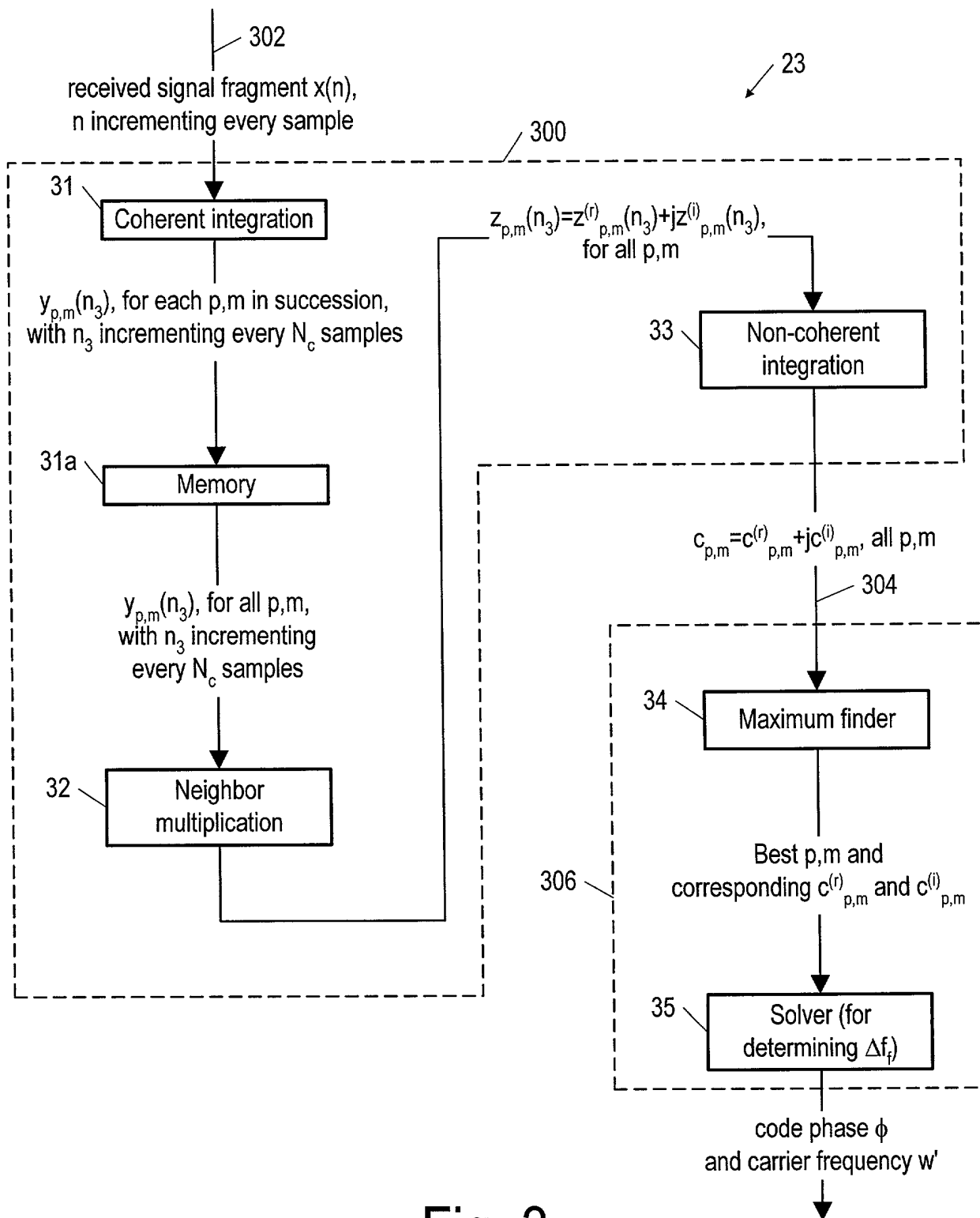


Fig. 3